

BORISOV, Ye.; ZOLOTAREV, A.; KASHUTIN, P.

Social and economic problems of technological progress. Vop. ekon.
no.11:150-155 N '61. (MIRA 14:11)
(Technology and civilization--Congresses)

LARIONOV, K.A., prof.; KADACHIGOV, V.M., prof.; KUZHELEV, N.S.,
dots.; LOPUKHOV, L.S., dots.; TIKHONOV, I.A., prof.;
TSAPKIN, N.V., prof.; CHESNOKOV, P.A., dots.;
KASHUTIN, P.A., dots., red.; MITINA, M., red.;
KOROLEVA, A., mlad. red.; MOSKVINA, R., tekhn. red.

[Economics] Politicheskaya ekonomiya; uchebnoe posobie.
Moskva, Sotsekgiz, 1963. 430 p. (MIRA 16:9)
(Economics)

KASHUTIN, V.M., kand. sel'skokhozyaystvennykh nauk

Machine for fertilizer application. Mekh. sil'. hosp. 9 no. 12:
9-10 D '58. (MIRA 12:1)

(Fertilizer spreaders)

KASHUTIN, V.M., kand.sel'skokhozyaystvennykh nauk

Differential centerless reel. Mekh. sil'. hosp. 11
no.6:10-11 Je '60. (MIRA 13:11)

(Harvesting machinery)

KASHUTIN, V.M., kand. sel'skokhoz. nauk

Placement of fertilizers at the time of deep plowing. Mekh.
sil'. hosp. 14 no.11:10 N'63. (MIRA 17:2)

KASHUTIN, V.N., dotsent.

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Basis for determining the size of teeth and the operating cycle
of toothtype cylinders.. Sel'khoz mashina no.12:9-11 D 56.
(MLRA 10:2)

1. Melitopol'skiy institut mekhanizatsii sel'skogo khozyaystva.
(Combines (Agricultural machinery))

1. Melitopol'skiy institut mekhanizatsii sel'skogo khozyaystva.
KASHUTIN, V.H., dots.

Dimensions and adjustment of reels. Sel'khoz mashina no.7:11-13
J1 '57. (MIRA 11:1)

1. Melitopol'skiy institut mekhanizatsii sel'skogo khozyaystva.
(Harvesting machinery)

5(3)

SOV/79-29-8-31/81

AUTHORS: Yur'yev, Yu. K., Mezentsova, N. N., Kashutina, E. A.

TITLE: Chemistry of Selenophene. XIX. 2-Aceto-selenophene in the Synthesis of α - and β -Keto-aldehydes in the Selenophene Series

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 8, pp 2597 - 2601 (USSR)

ABSTRACT: In addition to their previous papers (Refs 1-4), the authors used, in the present paper, the α -acyl-selenophenes for the synthesis of the α - and β -dicarbonyl compounds in the selenophene series. In this way, they obtained by oxidation of 2-aceto-selenophene with selenium dioxide the selenienyl-2-glyoxal, a keto-aldehyde, the bright-yellow color of which is due to a conjugation of the double bonds of two carbonyl groups and of the selenophene nucleus. The ultraviolet absorption spectrum of the selenienyl-2-glyoxal (Fig 1) has two maxima at λ 275 and 310 m μ . The compound is easily condensed with o-phenylene diamine, and forms quantitatively the 2-(selenienyl-2')-quinoxaline (Scheme 1). By the action

Card 1/2

Chemistry of Selenophene. XIX. 2-Aceto-selenophene in SOV/79-29-8-31/81
the Synthesis of α - and β -Keto-aldehydes in the Selenophene Series

of alkali lyes on its monosemicarbazone and monothiosemi-carbazone, water is split off and, accordingly, the 3-oxy- and the 2-mercapto-5-(selenienyl-2')-triazine-1,2,4 (Scheme 2). On condensation of 2-aceto-selenophene with the ethyl ester of formic acid under the influence of sodium, the sodium alcoholate of oxymethylene-(selenienyl-2)-ketone is obtained which is of dark-violet color in the thiophene series. Its absorption spectrum is characterized in figure 2 by curve I, the one of its intramolecular complex compound with Cu^{++} by curve II. There are 2 figures and 4 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: July 2, 1958

Card 2/2

SOV/80-32-2-52/56

AUTHORS: Andrianov, K.A., Zhdanov, A.A., Kashutina, E.A.

TITLE: Synthesis of Derived Molecular Di(triethylsiloxo)-Lead With Lead Hydroxide and Its Interaction With Titanium Tetrachloride (Sintez molekulyarnogo proizvodnogo di(triethylsiloksi)svintsa s gidrookis'yu svintsa i yego vzaimodeystviye s chetyrekhkhloristym titanom)

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol XXXII, Nr 2, pp 463-464 (USSR)

ABSTRACT: During the development of new methods for the synthesis of trialkylsiloxymetals of the general formula $(R_3SiO)_4$ a synthesis for tetra(triethylsiloxo)titanium from di(triethylsiloxo)-lead and titanium tetrachloride was found. The various steps of the experiment are described. There are 3 references, 2 of which are Soviet and 1 American.

SUBMITTED: April 24, 1958

Card 1/1

5 (2,3)

AUTHORS:

Andrianov, K. A., Corresponding Member SOV/20-126-6-32/6/
AS USSR, Zhdanov, A. A., Kashutina, E. A.

TITLE:

Synthesis of Triethyl Siloxy Derivatives of Vanadium and
Antimony (Sintez trietilsiloksiproduktov vanadiya i sur'my)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 6, pp 1261 - 1263
(USSR)

ABSTRACT:

Among the syntheses for the production of compounds of type $(R_3SiO)_nMe$, where n denotes the valency of the metal, which are known at present, the interaction reaction of the trialkyl silanates of sodium and of some other metals is of special interest (see scheme). These monomers have an Si-O-Me bond and the synthesis of polymers which have alternating metal or oxygen atoms in the main chain is directly connected with their synthesis. By the method, illustrated by the above scheme, the authors synthesized for the first time the following compounds: a) tetrakis-(trimethyl-siloxy)-titanium (Ref 1); b) tetrakis-(dimethyl-phenyl-siloxy)-titanium (Ref 3); c) tetrakis-(triethyl-siloxy)-titanium (Ref 2), and d) tetrakis-(triethyl-siloxy)-tin (Ref 2). In the present paper the above mentioned

Card 1/3

Synthesis of Triethyl Siloxy Derivatives of Vanadium and Antimony 30V/20-126-6-32/67

method was further developed for the synthesis mentioned (see schemes). The experiments carried out produced yields of 60-70% of the theoretically possible yields. The lead-triethyl-silanolate (Ref 4) showed a considerable reactivity: by the action of I titanium-tetrachloride or of II vanadium oxychloride on its complex compound the following was formed: I Tetrakis-(triethyl-siloxy)-titanium or II tris-(triethyl-siloxy)-vanadate (see schemes). These reactions which were investigated by the authors with respect to the titanium-tetra- or vanadium-oxychloride, are of general importance for the production of trialkyl-silyl-derivatives of various elements. The investigations of the infra-red spectra of some of the compounds synthesized (by N. Gashnikova in the Vsesoyuznyy elektrotekhnicheskiy institut im. V. I. Lenina - All-Union Electrotechnical Institute imeni V. I. Lenin) proved the characteristic oscillation frequencies of $VO[OSi(C_2H_5)_3]_3$ which are mentioned in the paper.

Table 1 shows properties of the materials synthesized among others also of tris-(triethyl-siloxy)-stibine. There are 1 table and 4 Soviet references.

Card 2/3

Synthesis of Triethyl Siloxy Derivatives of Vanadium and Antimony SOV/20-126-6-32/67

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR
(Institute of Elemental-organic Compounds of the Academy of Sciences, USSR)

SUBMITTED: April 10, 1959

Card 3/3

35592
S/062/62/000/003/008/014
B117/B144

15.8170

AUTHORS:

Andrianov, K. A., Zhdanov, A. A., and Kashutina, E. A.

TITLE:

Synthesis of polyorganosiloxane-oligomers with terminal malonate groups

PERIODICAL:

Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 3, 1962, 454-456

TEXT: The joint hydrolysis of dimethyl-diethoxy silane and (diethyl-malonylmethyl)dimethyl-ethoxy silane was studied. Dimethylchloromethyl-ethoxy silane synthesized by the method described by K. A. Andrianov and M. A. Golubenko (Ref. 4: Dokl. AN SSSR 112, 257 (1957)), boiling point 131-133°C, dimethyl-diethoxy silane, boiling point 112-116°C and freshly distilled malonic ester were used. The reaction was shown to take a smooth course in slightly acid medium without cleavage of ethoxy groups in malonic ester rests. Polyorganosiloxane-oligomers with terminal malonate groups are formed here. Investigation of infrared spectra of the compounds produced showed that the malonic ester residue is not added to the oxygen atom, but to the carbon atom. The following compounds were synthesized:

Card 4/3

and

Synthesis of polyorganosiloxane-oligomers...

S/062/62/000/003/008/014
B117/B144

Ya. I. Mindlin are mentioned. There are 2 figures and 4 references:
2 Soviet and 2 non-Soviet. The references to English-language publications
read as follows: L. Sommer, G. Goldberg, G. Barnes, L. Stone, J. Amer.
Chem. Soc. 76, 1609 (1954); L. Sommer, J. Masterson, O. Steward,
R. Leitheiser, J. Amer. Chem. Soc. 78, 2010 (1956).

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk
SSSR (Institute of Elemental Organic Compounds of the
Academy of Sciences USSR)

SUBMITTED: September 26, 1961

Card 3/3

ANDRIANOV, K.A.; ZHDANOV, A.A.; KASHUTINA, E.A.

Reaction of diethylmethoxychlorosilane with sodium derivatives of
acetylacetone and acetoacetic ester. Zhur. ob. khim. 32 no.1:297-
301 Ja '62. (MIRA 15:2)

(Silane)

(Pentanedione)

(Acetoacetic acid)

ANDRIANOV, K.A.; ZHDANOV, A.A.; KASHUTINA, E.A.

Synthesis of polyorganosiloxane oligomers containing malonate
end groups. Izv.AN SSSR.Otd.khim.nauk no.3:454-456 Mr '62.
(MIRA 15:3)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Silicon organic compounds) (Malonic acid)

"APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000721020014-4

AUTHOR: Andrianov, K.A.; Zhdanov, A.A.; Kashutina, E.A.

APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000721020014-4"

"APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000721020014-4

CH₃ CH₃

APPROVED FOR RELEASE: 06/13/2000

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CH₃ \ CH₂ / CH₃

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"APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000721020014-4

ASSOCIATION: none

ENCL. 00

SUB CODE: 00

NO REF ROV: 000

OTHER: 006

APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000721020014-4"

I 33514-66 EWT(m)/EWP(j)/T IJP(r) WW/RM

ACC NR: AP6015054

(A)

SOURCE CODE: UR/0190/66/008/005/0898/0902

AUTHOR: Andrianov, K. A.; Slonimskiy, G. L.; Zhdanov, A. A.; Kashutina, E. A.; Levin, V. Yu. 65
B

ORG: Institute of Organoelemental Compounds, AN SSSR (Institut elementoorganicheskikh soyedineniy AN SSSR)

TITLE: Thermomechanical investigation of polyorganometallic siloxanes containing bivalent metals

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 5, 1966, 898-902

TOPIC TAGS: polymer, metal, siloxane, atom, thermomechanical property, bivalent metal

ABSTRACT: Thermomechanical properties of polymers with atoms of bivalent metals in the siloxane chain have been investigated. It was shown that the introduction into the basic polymer chain of metal atoms capable of forming coordination bonds considerably changed the thermomechanical properties of polymers. The effect of metal atoms on the flow temperature of polymers depends on the distance between the metal atoms and on the nature of the metal. Orig. art. has: 5 figures, 1 formula, and 1 table.

[NT]

SUB CODE: 11, 07/ SUBM DATE: 22May65/ ORIG REF: 009/ OTH REF: 001

Card 1/1 9.0

UDC: 678.01:53+678.84

KASHUTKIN, N., strakhovoy delegat, tokar' (Moskva); MAKEYEV, V.,
strakhovoy delegat, slesar' (Moskva)

If everyone had a heart... Okhr.truda i sots.strakh. 5
no.12:16-17 D '62. (MIRA 16:2)
(Industrial hygiene)

GROSUL, Ya.S., red.; ABLOV, A.V., red.; GRIMBERG, I.P., red.;
AGAS'YEVA, N.A., red.; FAYERSHTEYN, M.G., red.;
KASHUTKIN, R., red.

[From the history of science and technology; materials]
Iz istorii nauki i tekhniki; materialy. Kishinev, Kartia
moldoveniaske, 1963. 187 p. (MIRA 17:9)

1. Konferentsiya istorikov yestestvoznaniya i tekhniki
Moldavii. 1st, Kishinev, 1962. 2. Prezident AN Moldavskoy
SSR (for Grosul). 3. Kishinevskiy gosudarstvennyy univer-
sitet (for Agas'yeva).

GIL'MAN, F.M.; KASHUTKIN, R.Z., red.; POLONSKIY, S.A., tekhn. red.

[The oil industry of Moldavia and the source of its raw materials] Masloboinaia promyshlennost' Moldavii i ee syr'e-
vaia baza. Kishinev, Izd-vo "Shtiintsa" Akad. nauk Moldavskoi
SSR, 1962. 174 p. (MIRA 15:7)
(Moldavia--Oil industries)

BABIY, Aleksandr Ivanovich; YERMURATSKIY, Vasiliy Nikitovich;
KASHUTKIN, R.Z., red.; POLONSKIY, S.A., tekhn. red

[Flourishing life of a Moldavian village] Rastsvet kul'tury
moldavskogo sela; na materialakh sela Kopanki Tiraspol'skogo
raiona. Kishinev, Izd-vo "Shtiintsa" AN Moldavskoi SSR,
1962. 55 p. (MIRA 16:7)

(Kopanka (Moldavia))--Rural conditions)

KIELCZEWSKI, Bohdan; KASHYNA, Edmund

Acarofauna of the coniferous cultures and saplings of the Zielonka
Experiment Forest District of the School of Agriculture. Prace
nauk roln i leśn 17 no.3:377-383 '65.

SZABO, Gyorgy; SANDOR, Zsigmond; KASI, Gyula

Comparative studies on Mantoux test with lyophilized purified tuberculin and Toenissen's Tebeptin. Szemeszet 99 no.1:34-38 Mr '62.

1. Makoi Varosi Tanacs Korhaza (Igazgato-foorvos: Toth J. Janos)
Szemosztalyanak (Foorvos: Szabo Gyorgy) es Tudosztalyanak (Foorvos:
Sandor Zsigmond) kozlemenye.

(TUBERCULIN REACTION)

Kasia, M.,

~~Kossakowski, Z.~~

I

POLAND / Radiophysics

Abs Jour : Ref Zhur - Fizika, No 4, 1957, No 10114

Author : Kasia, M., Kossakowski, Z.

Inst : Not given

Title : Apparatus for Radio Communication at Short Distances for the Needs of Railway Transport.

Orig Pub : Prace Przemysl. Inst. telekomm., 1954, 5, No 13-14, 68-75

Abstract : Description of apparatus of one-directional radio communication between the dispatcher and the engineer of a shunting locomotive. The working range is 32 -- 41 Mc. Amplitude modulation is used. With a transmitter power of 0.25 watts the range is approximately 3 km. The apparatus of the dispatcher is made portable.

Card : 1/1

3608

621.396.031 : 625.1

Kasia M., Kossakowski Z. A. Short-Distance Wireless Equipment for Railway Purposes. MN

"Urządzenie do radiolączności krótkodystansowej dla potrzeb kolejnictwa". (Prace Przem. Inst. Telekom. No. 13—14), Warszawa, 1954. PWT. 7 pp., 10 figs., 1 tab.

A description of equipment, developed at the Industrial Telecommunications Institute, providing one-way R. F. channel from the dispatcher to the engine driver of a steam engine at a marshalling yard. The equipment consists of two parts viz. a portable transmitter for the dispatcher and a receiver, mounted on the steam engine, for the engineer. It operates in the range 32...41 Mc/s on the A. M. basis. The power output of the transmitter amounts to 250 mW, the operating range is 3 km. In view of the usual locomotive top dimensions, the receiving antenna has the shape of an inverted L. The transmitting antenna is designed as a flexible vertical rod of a height $h < \frac{\lambda}{8}$, to allow for the specific working conditions of the dispatcher.

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KASIA, M.

ITR radiotelephone connecting fixed land stations and moving objects. p. 292.
(TELE-RADIO. Vol. 2, no. 6, June 1957, Warszawa, Poland)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, No. 12, Dec. 1957.
Uncl.

KASIANENKO, V. G. akad.

Certain current problems of the modern teaching of the structure and function of the organs of locomotion and support. Izv Inst morf BAN 4:41-52 '61.

(ANATOMY, HUMAN) (PHYSIOLOGY)

DUNDUCENKO, L.E. [Dunduchenko, L.Ye.]; KASIANIUK, S.A. [Kasyanyuk, S.A.]

The limited-type functions in a circular ring. I. Analele
mat 16 no.2:63-81 Ap-Je '62.

HOROSZKO, Jan, mgr.inz.; KASIARSKI, Eugeniusz, inz.

The MP 030 speedmiller. Przegl odlew 12 no.7:197-203 J1 '62

KASICH, P.

Dairying--Apparatus and supplies

Utilization of steam-boiler flue gas heat, Mol . prom. 13, No. 2, 1952

9. Monthly List of Russian Accessions, Library of Congress, May 195²₃, Uncl.

MADISON, V.A.; KASICH, P.P.

Twentieth anniversary of the special school for cheese
makers in Zvenigorodka. Khar. prom. no.1:88 Ja-Mr '65.
(MIRA 18:4)

KASICH-PILIPENKO A. Ye.
ASNIS, A. Ye., kandidat tekhnicheskikh nauk; KNAYZHINSKIY, Z. O.;
MANDEL'BERG, S. L.; ~~KASICH-PILIPENKO, N. Ye.~~, inzhener; ANDREYEV,
I. I.

New methods of mechanical testing for predelivery control of large
diameter, straight-welded joint pipes for main gas and petroleum
pipelines. Avtom.svar. 9 no.2:76-82 Mr-Ap '56. (MIRA 9:8)

1. Institut elektrosvarki imeni Ye. O. Patona AN USSR, Vsesoyuznyy
nauchno-issledovatel'skiy trubnyy institut i Khartayzskiy trubnyy
zavod.

(Pipes--Welding) (Welding--Testing)

KASICH-PILIPENKO, N. Ye.; OBUKHOVSKAYA, B.M.

Improving the qualifications of welders. Avtom. svar. 14 no.4:94-
95 Ap '61. (MIRA 14:4)

(Welding—Study and teaching)

1ST AND 2ND CODES																										3RD AND 4TH CODES																									
PROCESSES AND PROPERTIES INDEX																																																			
SA																										B 64 C																									
<p>446. The influence of rotor resistances and reactances on the properties of a double-squirrel-cage motor. A. Kala. <i>Elektrotech. Obs.</i>, 39, 318-22 (July, 1950) in Czech.</p> <p>Method of calculating and designing a series of Boucherot type motors for high starting torque and small starting current. Circle diagrams and a graph for quick reference are developed. H. NOREL.</p>																																																			
450-514 METALLURGICAL LITERATURE CLASSIFICATION																										E2 12 13																									
E2 12 13																										E2 12 13																									

Kasik, A.

Electromagnetic separators. p. 231.

Vol. 9, no. 8, Aug. 1954.
ELEKTROTECHNIK

SO: Monthly List of East European Accession, (EEAL), LC, Vol. 4, No. 9,
Sept. 1955, Uncl.

Kasik, A.

Distortion transformers for welding. p. 190. ELEKTROTECHNIK.
(Ministerstvo strojirenstvi) Praha. Vol. 11, no.6, June 1956.

Source: EEAL LC Vol. 5, No. 10 Oct. 1956.

KASIK, A., ind.

"Asynchronous motors" by H.S.Kozlowski and E.Turowski. Reviewed
by A.Kasik. El tech obzor 51 no.7:374-375 J1 '62.

KASIK, D.

New members of the vitamin B₁₂ group isolated from sewage sludge. V. T. Rátek, D. Kasík, O. Šichová, and H. Štěpán (Pharm. and Biochem. Inst., Prague). *Biochim. et Biophys. Acta* 19, 191-2 (1956).—Three new factors were isolated from a concentrate prepd. from fermented sewage sludge by means of chromatographic and electrophoretic techniques. They are provisionally designated as vitamin B₁₂-factors J, K, and L. Factor K is probably another member of the series of nucleotide-contg. compds., and factors J and L appear to belong to nucleotide-free cobalamins. The factors differ chromatographically from Bernhauer's "vitamin B₁₂-factor V." Morton Fader.

KASIK, F.

Grinding flats of carding machines according to Soviet experiences. p. 84.

(Textil. Vol. 12, no. 3, Mar. 1957. Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, no. 10, October 1957. Uncl.

KASIK, G.

"The Increase of the Maximum Permissible Speed and Track Maintenance." p. 26
(Zeleznice, Vol. 3, no. 2, 1953, Praha)

SO: Monthly List of East European Accessions, Vol. 3, no. 2, Library of Congress,
Feb. 1954, Uncl.

Radio, G.

Slender Railroad switches, p.5. (Technicke Noviny. Praha, Vol. 2, No. 16, August 1954)

SO: Monthly list of East European Accessions (EEAL), LC Vol 4, No. 6, June 1955, Uncl

KASIK, G.

Common problems of railroad track maintenance.

p. 14 (Železniční Technika. Vol. 5, no. 1, Jan. 1957. Praha, Czechoslovakia)

Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 2,
February 1958

KASIK, G.

Regulation of the railway gauge by means of clamps.

P. 161 (Železniční Technika) Vol. 5, No. 6, June 1957, Czechoslovakia

SO: MONTHLY INDEX OF EAST EUROPEAN ACCESSIONS (EEAI) LC. - VOL. 7, NO. 1, JAN. 1958

KASIK, G.

The role of wooden ties in the future.

p. 306 (Železniční Technika. Vol. 5, no. 11, Nov. 1957, Praha, Czechoslovakia)

Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 2,
February 1958

CZECH/34-59-7-9/22

AUTHORS: Kašík, Ivan, Ing. and Skála, Jiří, Ing.

TITLE: Surface Tension of Liquid Metals and Slags. Part I.
(Povrchové napětí tekutých kovů a strusek. I. část)

PERIODICAL: Hutnické Listy, 1959, Nr 7, pp 602-608 (Czechoslovakia)

ABSTRACT: The aim of the work described in this paper was to determine the influence of the contents of oxygen and sulphur on the surface tension of metals of various chemical composition and to measure the surface tensions of various melts, with compositions approaching those of slags and non-metallic mixtures. The authors used a method which is based on the maximum pressure of the bubble of an inert gas which is driven into the liquid metal. A description is given of the instrument and Fig 1 shows a diagrammatic sketch of the apparatus used for measuring the surface tension. The basic equation proposed by Cantor in 1892, Eq (8), p 604, has been modified by the author into a simpler equation, Eq (9), p 605. In discussing the results the authors point out the influence of the temperature of the material, the duration of the measurements, the geometrical dimensions

Card 1/3 of the capillary, the depth of submersion into the fused

CZECH/34-59-7-9/22

Surface Tension of Liquid Metals and Slags. Part I.

substance and the speed of formation of bubbles. The accuracy of the method is also evaluated. The technique was verified by measuring the surface tension of slags. The measurements included determination of two absolute values of the surface tension in a given type of slag with differing chemical compositions and the obtained results are compared in Table 2 with those obtained by other authors for slags of similar compositions. The values entered in Table 2 were obtained at 1350°C. Furthermore, the surface tension was determined of several steels with initial compositions of 0.05% C, 0.3 to 0.4% Si, 0.5 to 1.5% Mn. During each heat three to seven measurements were made with various quartz capillaries. The determined surface tension values were between 1130 and 800 dyn/cm. In each of the heats the first result was the highest and it dropped towards the end of the heat. Chemical analysis of the samples taken during each measurement has shown that the Mn content dropped down to 0.01% and the Si content dropped down to traces. The measured results and the surface tension

Card 2/3

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CZECH/34-59-7-9/22

Surface Tension of Liquid Metals and Slags. Part I.

calculated from these are entered in Table 3, p 608. Experiments with Cr-Ni steels, the results of which are entered in the graph, Fig 7, p 607, showed that vanadium and titanium influence the surface tension of low alloy Cr-Ni steels. A further part of this paper, to be published later, will be devoted to the determination of the influence of oxygen and sulphur on the surface tension of pure iron and of iron alloys of various compositions in the liquid state and also to measuring the surface tension of certain melts with chemical compositions approaching those of slags and of non-metallic inclusions. Acknowledgments are made to Ing. M. Mandl and M. Kaše for their assistance and comments during the experiments.

There are 6 figures, 3 tables and 7 references, 4 of which are English and 4 Soviet.

ASSOCIATION: Výzkumný ústav hutnictví železa, Praha
(Ferrous Metallurgy Research Institute, Prague)

SUBMITTED: February 5, 1959

Card 3/3

AUTHOR: Kašík, I. Engineer

CZECH/34-59-11-18/28

TITLE: Report on the Fifth Conference of the Physical-chemical
Bases of Producing Steel

PERIODICAL: Hutnické listy, 1959, Nr 11, pp 1002 - 1007

ABSTRACT: From June 30 to July 4, 1959 the Fifth Conference on
Physical-chemical Fundamentals of Steel Production was
held at the Baykov Institute of Metallurgy of the Ac.Sc.,
USSR. The conference was divided into two parts. In the
first part, three review papers were read (these are
briefly summarised in this report), the aim of which was
to summarise and evaluate a number of scientific papers
and to acquaint the participants in the conference with
the present state in the field of the theory of
metallurgical processes.
Corresponding Member of the Ac.Sc., USSR A.M. Samarin
read a paper on "Oxygen in ferrous alloys";
L.A. Shvarcman read the paper "Certain problems of thermo-
dynamics of iron and carbon";
O.A. Vesin read a paper on the "Structure and properties of
metallurgical slags".

Card1/2

CZECH/34-59-11-18/28

Report on the Fifth Conference of the Physical-chemical Bases of Producing Steel

In the second part of the conference, 116 papers were read in nine sections. In this report the following are listed and briefly summarised:

"Electric slag resmelting of alloy steels and alloys as an effective method of improving the quality" by B.I. Maximovich;

"Using complex deoxidation media for shortening the reduction time in smelting in arc furnaces" by F.P. Yednyeral;

"Using nickel monoxide for alloying Cr-Ni steels produced in ^{large} open-hearth furnaces" by B.G. Pyetuchov;

"Deoxidation of steels and alloys" (original method of vacuum treatment of bearing steels) by G.N. Oyks;

"Measurement of high temperatures in steel production by means of thermocouples" by A.A. Rudnitskiy.

There are 6 figures and 2 tables.

Card 2/2

18.1150

2808, 1471, 1496 only

85188
Z/034/60/000/011/001/009
E073/E335

AUTHORS: Petrman, Ivo, Engineer and Kašik, Ivan, Engineer

TITLE: Improvement of the Quality of ~~Antifriction Bearing~~
Steel by Electroslog Resmelting 17

PERIODICAL: Hutnické listy, 1960, No. 11, pp. 839 - 851

TEXT: In the first part of the paper an explanation is given of the operation of the electroslog resmelting principle which has been developed largely by the Soviet Ye.O. Paton Electric Welding Research Institute (and has been in use since 1958 at the Soviet Dneprospetsstal Works). On the basis of Soviet information on the method (Refs. 3-6) the Ferrous Metallurgy Research Institute has carried out investigations for the purpose of improving the properties, particularly the micropurity of bearing steels and in this paper the results of this research are described. The process of electroslog smelting is, to some extent, similar to the process of melting electrodes in vacuum arc furnaces. The starting material (steel or alloy) is made into electrodes by classical methods. These are electrothermically melted off, subjected to refining in the liquid state (by vacuum or slag) and made to solidify rapidly in a Cardl/5

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Improvement of the Quality of Antifriction Bearing Steel by
Electroslag Resmelting

water-cooled metallic crystalliser. In the electroslag furnace the electrode is melted off by the heat released in the fused-slag layer. The layer of the molten slag above the metal acts as an electric resistance to the electric current and simultaneously as a refining and protection layer for the melting metal. The electric process does not involve arc formation and AC is used for the purpose. The refining of the metal proceeds during the passage of the metal drops through the overheated slag layer which is of a special composition. During the passage of the metal drop through the slag layer it becomes purified of gases, nonmetallic admixtures and some other harmful admixtures, particularly sulphur. As a result of this the composition is improved, whilst during solidification the structure is improved. The smelting is in the crystallite itself so that smelting and solidification proceed simultaneously. The solidifying part of the ingot is continuously covered with a layer of melting liquid metal which, jointly with the thick layer of the overheated slag, provides ideal and constant crystallisation

X

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Electroslag Resmelting

conditions. Crystallisation is fast each time for a small quantity of liquid metal and with a continuous direction of the solidification from the bottom upwards. As a result of this the ingots are free of typical defects of ingots produced by classical methods. The Czech experiments comprised 32 experimental heats carried out exclusively with the steel CSN 14104. The electrodes were rods of 50 mm diameter and the produced ingots were of 140, 120 and 90 mm diameter, with heights of 250, 350 and 600 mm. The ingots were forged by standard methods to 80 and 55 mm diameter and to 50 mm square. The following slags were used: $\text{CaF}_2\text{-Al}_2\text{O}_3$ (A), CaF_2 (B) and $\text{CaF}_2\text{-CaO}$ (C). The resmelting was effected by means of a modified automatic SDK 5000 welding machine which was specially adapted for the purpose. The speed of the electrodes during the smelting could be controlled between 0 and 16 m/h. The crystalliser consisted of two concentric copper tubes with water cooling. The laboratory results were obtained with the

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Improvement of the Quality of Antifriction Bearing Steel by
Electroslag Resmelting

participation of M. Mandl, A. Pössnerová, R. Freiwillic,
R. Říman, B. Petr, M. Kaše, M. Pelikán, K. Tykal, V. Zák,
Z. Kodedová, J. Prokopec. The results are described in great
detail, giving information on the chemical composition,
macrostructure, mechanical properties, gas content, micro-
purity and microstructure. Furthermore, the technological
influences on the electroslag process are described and also
the economics of the process. It was found that the quality
of the metal had improved greatly. The surface and the macro-
structure of the ingots was without any defects; the steel
was of a fine grain, uniform and dense. The quantity of
sulphur decreased considerably and so did the quantity of
sulphide admixtures and, in some cases, also of oxide admixtures.
The remaining admixtures are more uniformly distributed and are
of a more favourable shape. There was also a drop in the
content of hydrogen and nitrogen of the steel. The achieved

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Improvement of the Quality of Antifriction Bearing Steel by
Electroslag Resmelting

laboratory results indicate that electroslag smelting of steel does improve its quality considerably. Research in this field is continuing and the influence of various technological factors is being studied on a laboratory scale. A semi-industrial installation is to be built for the purpose of carrying out some industrial smelting tests. The properties of the produced steel are being tested by means of specially designed long-duration tests simulating the stress conditions pertaining in antifriction bearings. Acknowledgments are expressed to M. Záruba, J. Petráček, O. Döubal and J. Janoušek of VÜS STS for their assistance in carrying out the tests.

There are 10 figures, 12 tables and 10 references: 8 Soviet and 2 Czech. X

ASSOCIATION: VÚHŽ, Prague

SUBMITTED: September 15, 1960

Card 5/5

GEORGIEV, L., inz.; KASIK, I., inz.

Effect of sulfur in heating oil on the amount of sulfur in
finished steel from open-hearth furnaces. Hut listy 16 no.4:236-
240 Ap '61.

1. Vyzkumny ustav hutnictvi zeleza, Praha.

L 10818-63

EW P(q)/BDS--ASD--JD

ACCESSION NR: AP3000088

Z/0034/63/000/005/0319/0328

AUTHOR: Vodsedalek, J. (Engineer, Candidate of sciences); Kasik, I. (Engineer)

TITLE: Electroslag melting of heat-resistant alloys ¹⁸

53
51

SOURCE: Hutnicke listy, no. 5, 1963, 319-328

TOPIC TAGS: heat-resistant alloy, nickel-base alloy, gas-turbine-blade alloy, electroslag melting, alloying-element loss

ABSTRACT: The effect of electroslag melting on composition, structure, and mechanical properties of an Ni-Cr-base gas-turbine-blade alloy has been studied. Six induction-melted alloy heats containing 0.8 to 0.15% C, 0.11 to 0.50% Si, 0.31 to 0.46% Mn, 14.65 to 16.08% Cr, 1.23 to 1.80% Ti, 1.10 to 2.07% Al, 4.64 to 5.59% W, 3.23 to 4.37% Mo, 0.004 to 0.008% S, 0.001 to 0.013% P, 0.008 to 0.040% B, and 0.047 to 0.095% Zr (one heat contained also 13.84% Co) were cast into cylindrical ingots 25 or 50 mm in diameter, which, butt-welded in threes, were used as consumable electrodes for electroslag melting in a mold 120 mm in diameter under a slag containing 70% CaF₂ and 30% Al₂O₃. As a result of

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ACCESSION NR: AP3000088

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electroslag melting, Ti and Al lost on the average 6.2 and 23.6%, while Si and Fe gained on the average 69.6 and 81.9%, of the respective original contents. Changes in S and P contents were erratic but generally insignificant. The O_2 and H_2 contents were equal to or somewhat lower than those in conventionally melted alloys of similar composition; the N_2 content was considerably higher, but the finely dispersed carbonitrides were uniformly distributed throughout the alloy matrix. The effect of electroslag melting on mechanical properties was manifested generally in higher ductility, better uniformity and lesser anisotropy of the strength and ductility characteristics, and better hot ductility. For instance, at 20C a cast electroslag-melted alloy austenitized at 1150C for 2 hr and aged at 800C for 16 hr had, in the longitudinal and transverse directions, tensile strength of 76.2 to 81.2 kg/mm² and 67.7 to 74.3 kg/mm² and elongation of 16.2 to 27.5% and 6.3 to 8.5%, respectively. Corresponding figures for a conventionally melted alloy of similar composition were 61.9 to 70.5 kg/mm² and 1.0 to 5.3% (longitudinal), and 48.8 to 57.8 kg/mm² and 1.3 to 1.5% (transverse). The lowest 100-hr rupture strength of the cast electroslag-melted alloy at 750, 800, and 850C was 30, 21, and 14.5 kg/mm² at a total elongation of 26.0, 32.8, and 32.8%, respectively. Corresponding figures for forged conventionally melted alloy were 35, 26, and 16 kg/mm² and 2.3, 2.0, and 4.1%. Fatigue strength of

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L 10818-63

ACCESSION NR: AP3000088

2
cast electroslog alloy, 16 kg/mm², is only slightly lower than that of forged
conventionally melted alloy, 18 kg/mm². Orig. art. has: 12 tables and 14 figures.

ASSOCIATION: SVUMT; VUHZ

SUBMITTED: 00

DATE ACQ: 17Jun63

ENCL: 00

SUB CODE: ML

NO REF SOV: 011

OTHER: 003

mcs/ur

Card 3/3

KASIK, Ivan, inz.; STORKAN, Zdenek, inz.; STANEK, Jiri

Electroslag remelting of steel and alloys in the Soviet Union. Hut listy 19 no.5:311-318 My '64

1. Research Institute of Iron Metallurgy, Prague (for Kasik and Stanek). 2. Spojene ocelarny, Kladno (for Storkan).

L 07534-67 EWP(k)/EWI(l)/EWP(e)/EWP(t)/ETI IJP(c) JD
ACC NR: AP6019417 (A) SOURCE CODE: CZ/0078/66/000/005/0009/0009

INVENTOR: Hruska, Alois (Engineer; Prague); Kasik, Ivan (Engineer; Prague); Starosta, Ondrej (Engineer; Cercany); Siska, Miloslav (Benesov u Prahy); Valek, Jiri (Doctor of Physics; Prague)

ORG: none

TITLE: [Method for making permanent magnets] CZ Pat. No. PV 1453-65

SOURCE: Vynalezky, no. 5, 1966, 9

TOPIC TAGS: magnet, permanent magnet material, magnetic alloy

ABSTRACT: A method for making permanent magnets having a pole structure by the electric slag smelting of an alloy for permanent magnets is described. The chemical composition of the alloy is 5 to 10% Al, 10 to 27% Ni, 5 to 40% Co, 1 to 10% Cu, 0 to 10% Ti, 0 to 4% Zr, 0 to 4% Nb, 0 to 4% Ta, and a residue of Fe in the crystallizer. The distinguishing feature of the method is that in order to direct the growth of the crystal in the axial direction of the crystallizer, in the direction of magnetization, the current density in the electrode is controlled and kept in the 0.3 to 3.5 A/mm² range through the temperature regime of the electric slag process using slag of chemical composition 40 to 100% CaF₂, 0 to 50% Al₂O₃, 0 to 50% CaO, 0 to 10% SiO₂, 0 to 5% MgO, 0 to 5% TiO₂.

SUB CODE: 09,11/ SUBM DATE: 03Mar65

L 33192-66

ACC NR: AP6023822

SOURCE CODE: CZ/0014/66/000/002/0059/0059

AUTHOR: Kasik, Stanislav (Engineer)

ORG: none

50
B

TITLE: Interesting application of 'transimat' units

SOURCE: Sdelovaci technika, no. 2, 1966, 59

TOPIC TAGS: electronic component, pulse modulation, frequency division

ABSTRACT: The article describes a current modulator⁴ serving as a source of pulses of up to 150 A at a pulse division of 200 microseconds with a repetition frequency of 50 cps. A double retarder composed of "Transimat" units serves as the output part of the modulator. Orig. art. has: 4 figures. [JPRS]

SUB CODE: 09 / SUBM DATE: none / ORIG REF: 001

Card 1/1 mc

0915

12-511

KASIK, Stepan, inz.

Technical and economic evaluation of ore deposits.
Rudy 12 no. 3: 77-80 Mr '64.

1. Central Geologic Office, Prague.

CHVOJKA, Z.; KASIK, S.

Measurement of the central ray in the pencil of betatron
X-irradiation. Cesk. rentgen. 18 no.1:44-48 Ja'64.

1. Radiologicka klinika lekarske fakulty KU v Hradci
Kralove (prednosta: prof. dr. J. Bastecky, DrSc.) Chirana,
n.p. Praha-Vysocany.

*

KASIK,S.; CHVOJKA,Z.

Isodosis of the useful beam and the absolute measurement of
betatron x-ray radiation. Cesk. radiol. 19 no.3:202-207
My '65

Kasik, S.
Hutnicke Listy
Vol. 17, No. 11, 1960

The author arrives at following conclusions: 1. The intensity of sublimation evaporation in vacuum from the surface can be expressed with the aid of an equation of first order, that means the process being limited by the diffusion of vapour in the metal. 2. The sublimation evaporation process is continuous

agreement with the aid of an equation of first order, that
the process is limited by the diffusion of sulfur
in the metal. The sulfur evaporating process is continuous
independently on the sulfur concentration (from 1.33 to
0.88 %) but it becomes slower during the time. The pre-
sence of Si, C and Al elevates considerably the sulfur
evaporation in vacuum. The presence of these elements
has a negative influence on the rate of the process.

KASIK, Stanislav; KUDRNA, Jan; CHVOJKA, Zdenek; SOUKUP, Miroslav

Protection from ionizing radiation in a betatron laboratory. Cesk.
rentgenol. 16 no.4:284-290 Ag '62.

1. Radiologicka klinika KUNZ v Hradci Kralove, prednosta prof. dr
J. Bastecky Chirana, n. p., zavod Praha - Vysocany Hygienicke-
epidemiologicka stanice UNZ UNW hl. mesta Prahy.
(RADIATION PROTECTION)

KASIK, Stepan, inz.

The results of iron ore mining and dressing in the second Five-Year Plan in Czechoslovakia. Rudy 10 no.6:181-185 Je '62.

1. Statni planovaci komise, Praha.

KASIKA, V.

"Video amplifiers in television equipment using camera tubes of the vidicon type." P. 384.

SLABOPROUDY OBZOR. (Ministerstvo presneho strojirenstvi, Ministerstvo spoju a Vedecka technicka spolecnost pro elektrotechniku pri CSAV). Praha, Czechoslovakia, Vol. 20, No. 6, June 1959.

Monthly list of East European Accessions (EEAI), LC, Vol. 8, No. 8, August 1959.
Uncla.

VAMBERA, Karel, inz.; KASIKA, Vladimir, inz.

Transistor amplifiers with remote gain control. Slabo-
proudny obzor 25 no. 2: 94-99 F '64.

1. Tesla, n.p., zavod Radiospoj, Praha.

KASIKHIN, A. N.

KASIKHIN, A. N. "Effectiveness of Measures for the Protection of
Grain Rotation in Conditions of Talov Raion, Voronezh Oblast,"
Itogi Nauchno-Issledovatel'skikh Rabot Vsesoiuznogo Instituta
Zashchity Rastenii za 1935 Goda, 1936, pp. 182-186. 423.92
L541

So: Sira Si - 1953, 15 December 1953

KASIKHIN, A. N.

PA 15/49T79

USSR/Medicine - Insecticides
Medicine - Insects, Eradication

Apr 48

"Hexachlorane and the Problem of a Chemical Means
of Controlling Wire Worms," A. N. Kasikhin,
Cand Agr Sci, L. T. Yatsyna, Cand Agr Sci, Moscow
Affiliate of VIZR, 3 3/4 pp

"Dok V-S Ak Selkhoz Nauk" No 4

Describes tests of new USSR preparation of
hexachlorane in Moscow branch, All-Union Inst of
Plant Protection. Insecticide is applied with
fertilizer for grain crops and placed in hole
before planting kok-sagyz. Research continues.
15/49T79

KASIKHIN, A. N.

PA 33/49T5

USSR/Agronomy
Insecticides
Insects - Eradication

Jul 48

"Seventeenth Assembly of the Plant Conservation
Section of the All-Union Academy of Agricultural
Sciences Imeni V. I. Lenin," A. N. Kasikhin,
Cand Agr Sci, 2 $\frac{1}{2}$ pp

"Dok v-s Ak Selkhoz Nauk" No 7

Session convened 19 - 21 Jan 48 discussed various
achievements in field of insecticides. Most
reports discussed action of DDT and "hexachlorane."
Resolutions on trends scientific research work in
insectofungicides should take.

33/49T5

KASIKHIN, A. N.

"Experience in Using Fog Machines," Zashchita Rasteniy ot Vreditel'ey i Bolezn'ey, Vol. 1, No. 4, p. 15, Sep/Oct 1956.

Translation - U-3,054,552, 20 Aug 57

ZHUKOVA, K.P.; KAPKOVA, Ye.A.; KASIKHIN, A.N.; KOZLOVA, V.I.;
MILOVIDOVA, N.D., red.; STREL'TSOVA, N.P., red.

[Corn pests and diseases] Vrediteli i bolezni kukuruzy.
2. izd. Moskva, Sel'khozizdat, 1963. 34 p. (MIRA 17:4)

KASIKIC, J.

"Passenger railroad transportation."

p. 43 (Železnice) Vol. 14, no. 1, Jan. 1958
Belgrade, Yugoslavia

SO: Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 4,
April 1958

KASIKIC, Josip

Some theoretical problems of principle related to the organization
and integration of railroads. Zeleznice Jug 18 no.11/12:1-14 '62.

KASIKIC, Josip

Use of freight cars on Yugoslav Railroads. Belgrade Jug 19
no.781-12 J1'63

L 10611-65 EMT(1)/EWU(k)/EPA(sp)-2/EPF(n)-2/EPA(w)-2/T/ENIA Pu-4/Px-6/Pab-2L
IJP(c)/AFWL/ESD(gs)/ESD(t) AT

ACCESSION NR: AP4045318

S/0048/64/028/009/1541/1544

AUTHOR: Karamzin, V.P.; Kasikov, I.I.; Stakhanov, I.P.

TITLE: Effect of the cathode work function on the operation of a thermoelectronic
converter in the diffusion regime /Report, Tenth Conference on Cathode Electronics

"APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000721020014-4

SOURCE: AN SSSR. Ivestiya. Seriya fizicheskaya, v.28, no.8, 1984, 1541-1544

APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000721020014-4"

... it converged. In 1958, the ...
... to take into account the ... the ...
... (1958, 1960). This was accomplished by ...

"APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000721020014-4

APPROVED FOR RELEASE: 06/13/2000

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CIA-RDP86-00513R000721020014-4"

L 45166-66 EWT(l)/EWT(m)/EEC(k)-2/T/EWP(t)/ETI IJP(c) RTW/TT/JD/WW/JG/AT
 ACC NR: AP6028623 SOURCE CODE: UR/0057/66/036/008/1481/1488

AUTHOR: Bekmukhambetov, Ye. S.; Gus'kov, Yu. K.; Kasikov, I. I.; Lebedev, S. Ya.
Stakhanov, I. P.; Rodin, A. V.

ORG: none

TITLE: Operation of a cesium thermoelectric converter in the presence of an inert gas

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 8, 1966, 1481-1488

TOPIC TAGS: thermionic energy conversion, cesium, electric arc, cesium plasma, inert gas, neon, argon, krypton, xenon

ABSTRACT: The authors have investigated the effect of the presence of Ne, Ar, Kr, and Xe on the operation of a cesium arc in the 0.5 to 1.0 mm gap between a hot molybdenum foil cathode and a niobium anode. The apparatus was sealed off at 10^{-7} mm Hg after having been cleansed by the usual vacuum techniques. The cesium pressure was controlled by varying the temperature of a branch tube containing metallic cesium, the temperature of the remainder of the apparatus being kept 30 to 50° C higher. The inert gas was admitted in successive doses by breaking tubes containing it. The cesium pressure was varied from 0.0275 to 3.9 mm Hg, and inert gas pressures up to 234 mm Hg were investigated. Very small additions of inert gas increased the plateau of the current-voltage characteristic by some 0.1 V, but further increase of the inert gas pressure led to deterioration of the characteristics of the converter.

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L 45166-66

ACC NR: AP6028623

2

The presence of the inert gas decreased the saturation current. The saturation current under different conditions was calculated with the aid of the diffusion theory of B.Ya.Moyzhes and G.Ye.Pikus (FTT, 2, 756, 1960), and the results are compared with the measured values. The measured saturation currents were usually from 2 to 10 times lower than the calculated currents. This is ascribed to increase of the inert gas concentration in the hot region between the electrodes as a result of thermal diffusion of the inert gas cesium mixture. Xenon reduced the saturation current less than did neon or krypton; this is ascribed to the fact that the atomic mass of xenon is closer than that of neon or krypton to the atomic mass of cesium. A formula is derived for the thermal diffusion ratio, and with the aid of this formula and the assumption that the observed deviations from the moyzhes-Pikus theory are due to thermal diffusion, values of the Kr-Cs and Xe-Cs cross sections were calculated from the experimental data. The Kr-Cs and Xe-Cs cross sections were thus found to be 8×10^{-14} and $1.05 \times 10^{-13} \text{ cm}^2$, respectively. The authors thank S.I.Kutashev and V.I.Klinov for assistance in constructing the apparatus and performing the measurements. Orig. art. has: 11 formulas, 6 figures and 3 tables. [15]

SUB CODE: 20
ATD PRESS: 5081

SUBM DATE: 23Aug65

ORIG. REF: 002

OTH REF: 004/

Card 2/2 *alum*

STEPANOV, A. S.; STAKHANOV, I. P.; GUS'KOV, Yu. K.; KASIKOV, I. I.; PASHCHENKO, V. P.;
MAYEV, S. A.; LEBEDEV, M. A.

"State of the investigations into physical processes in thermionic converters."

report to be presented at Intl Conf on Thermionic Electrical Power Generation,
London, 20-24 Sep 65.

USSR State Comm for Applications of Atomic Energy, Moscow.

L 23703-66 EWT(1)/EWT(m)/EWP(t) IJP(c) JD/JG

ACC NR: AT6006754

SOURCE CODE: UR/3158/65/000/015/0001/0018

AUTHOR: Bekmukhambetov, Ye. S.; Gus'kov, Yu. K.; Kasikov, I. I.; Lebedev, S. Ya.; Rodin, A. V.; Stakhanov, I. P. 73

ORG: Physics and Power Institute, State Committee on the Use of Atomic Energy, SSSR (Fiziko-energeticheskiy institut, Gosudarstvennyy komitet po ispol'zovaniyu atomnoy energii SSSR) B+1

TITLE: Operation of a ¹¹cesium diode with ²¹inert-gas impurity

SOURCE: Obninsk. Fiziko-energeticheskiy institut. Doklady, no. 15, 1965. Rabota tseziyevogo dioda s primes'yu inertnogo gaza, 1-18

TOPIC TAGS: cesium electron tube, cesium plasma, thermoelectric convertor, volt ampere characteristic, pressure effect, temperature dependence, inert gas

ABSTRACT: The investigations were motivated by the fact that when a thermoelectric converter is operated in a nuclear reactor, the fission products, a large fraction of which are radioactive krypton and xenon, may enter in the interelectrode gap of the converter, and their effect on the converter in the operation of a cesium diode may be appreciable. The tests were made with experimental tubes with flat electrodes, using a molybdenum cathode and niobium anodes. Doubly distilled metallic cesium and spectrally pure krypton and xenon were used in varying amounts. The cathode was fed with pulsating halfwave current. The cesium vapor pressure ranged from 0.1 to 3.9 mm Hg for the krypton-filled tube and 0.02 to 2 mm Hg for the xenon-filled tube. Plots were prepared of the dependence of the short-circuit current on

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L 23703-66

ACC NR: AT 6006754

the cathode temperature without and with the inert gases, and volt-ampere characteristics at various pressures. The introduction of the inert gases resulted in a parallel shift of the temperature dependence curves towards smaller currents, and to noticeable reduction in the output parameters of the converter. Comparison of the experimental results with calculations based on diffusion theory show in general good agreement, although some unexplained irregularities were observed in that the saturation current following addition of xenon was higher than following addition of krypton, and that the experimental currents usually were lower than the theoretical ones. These deviations are related to thermal diffusion separation of the cesium-krypton and cesium-xenon mixtures in the tube. The experiments show that addition of inert gases reduces the saturation current compared with pure cesium. The experimental saturation currents were as a rule lower than the theoretical ones by a factor 2--4. Addition of krypton reduced the saturation current more than addition of xenon. The thermal diffusion ratios were calculated for Cs-Kr and Cs-Xe mixtures in the case of low cesium densities. The values obtained for the cross sections of the interaction between cesium and xenon and krypton are 1.05×10^{-13} and $8 \times 10^{-14} \text{ cm}^2$, respectively. Direct experiments on the thermal diffusion in the mixtures of cesium and inert gases are necessary for a final interpretation of the results. Orig. art. has: 12 figures and 12 formulas.

SUB CODE: 20/1 ORIG REF: 004/ OTH REF: 002

SUBM DATE: none

Card 2/2 FV

L 24316-66 EWT(1)/EPF(n)-2/ENG(m) IJP(c) AT
 ACC NR: AT6006756 SOURCE CODE: UR/3158/65/000/017/0001/0023

AUTHOR: Stakhanov, I. P.; Kasikov, I. I.

ORG: Physics and Power Institute, State Committee on the Use of Atomic Energy SSSR
 (Fiziko-energeticheskii institut, Gosudarstvennyi komitet po ispol'zovaniyu atomnoy
 energii SSSR)

TITLE: On the calculation of the volt-ampere characteristics of a thermionic con-
 verter in the arc mode

SOURCE: Obninsk. Fiziko-energeticheskii institut. Doklady, no. 17, 1965. K ras-
 chetu vol't-ampernykh kharakteristik TEPA v dugovom rezhime, 1-23

TOPIC TAGS: thermoelectric convertor, gas discharge plasma, ionization phenomenon,
 electron recombination, transport equation, volt ampere characteristic, pressure
 effect

ABSTRACT: The authors present a calculation of the volt-ampere characteristics of a
gas-discharge plasma, based on formulation of the transport equation in the diffusion
 approximation, assuming a thermal mechanism for the ionization, wherein the rate of
 ionization is proportional to the charge density in the plasma. Volume recombination
 is neglected. It is assumed that no abrupt change of the potential occurs in the
 plasma over the mean free path of the electrons, and all such changes occur in Lang-
 muir layers at the electrodes. The problem is solved for an infinite plane converter.
 The transport equation is derived, and the integrals involved in the solution are
 solved by numerical methods. The validity of the assumptions made and of the approx-

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ACC NR: AT6006756

imations employed in the calculations are discussed briefly. The equations are solved for the case of constant ion and electron temperatures. The results show that the ionization coefficient under these assumptions does not depend on the current, and the same result was obtained by accurate solution of the equations with an electronic computer. The resultant volt-ampere characteristics are plotted in dimensionless and dimensional form for different gaps, pressures, and overcompensation parameters. Plots are also presented for the pressure dependence of the short-circuit current. Orig. art. has: 10 figures, 38 formulas, and 4 tables.

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